**Policies in Research Organisations for Research Software (PRO4RS) case statement**

**1. WG Charter: A concise articulation of what issues the WG will address within a 12-18 month time frame and what its “deliverables” or outcomes will be.**

The Policies in Research Organisations for Research Software (PRO4RS) Working Group (WG) will support research performing organisations worldwide to develop, align, and implement policies on research software, as a key component of FAIR and open science/scholarship.

An increasing number of initiatives are focusing on implementation of research software within the context of FAIR and open science. Efforts to align policies from funders, journals, and governments are also in progress. However, there is a significant gap around how research performing organisations can develop and implement local policies to help support sustainability of software outputs, ensure reproducibility of research outputs, and underpin research quality.

We will create a community focused on better understanding and addressing core challenges in research software. The community will develop, analyse, promote and/or implement suggested strategies and associated policies as a basis to drive change and significantly enhance the ways that research-performing organisations recognise and support research software. To achieve this, aims will be:

1. Identification of [institutional policies](https://www.researchsoft.org/software-policies/) that support research software for research software policy.
2. Collation of resources on how to support policy change in research institutions in practice.
3. Analysis of existing policies to define a common framework for research software policy.
4. Identification of areas where policies are lacking, to catalyse efforts.
5. Case studies to increase adoption of (standardised) policies.

This will build on the Research Software Alliance (ReSA) taskforce, [Research institution policies to support research software](https://www.researchsoft.org/taskforces/), which is already building a collection of relevant [institutional policies](https://www.researchsoft.org/software-policies/), and the Science Europe Task Force on Open Research Software development of recommendations and guidelines for European research performing organisations.

**2. Value Proposition: A specific description of who will benefit from the adoption or implementation of the WG outcomes and what tangible impacts should result.**

The WG aims to advance the ability of research performing organisations worldwide to create, share, manage, and re-use research software (a research output that is not often recognised), via policies, including use of the FAIR for Research Software (FAIR4RS) Principles.

Research software is defined in the [FAIR4RS Principles](https://www.nature.com/articles/s41597-022-01710-x#ref-CR5) as including “source code files, algorithms, scripts, computational workflows and executables that were created during the research process or for a research purpose. Software components (e.g., operating systems, libraries, dependencies, packages, scripts, etc.) that are used for research but were not created during or with a clear research intent should be considered software in research and not Research Software. This differentiation may vary between disciplines.”

In the context of scientific research, research data management policies were implemented 1) to encourage transparency, integrity, preservation, and the general maximisation of value of research data; and 2) in response to funder and other high-level mandates. Research software policies are closely interconnected and mutually supportive to research data management policies. Nonetheless research software is fundamentally different from research data and needs to be treated as such; it should not be seen as simply another type of data. Simultaneously, there are currently few funder and high-level mandates related to research software.

Software policies can cover multiple aspects of software management; namely, its development, legal, ethical and secure use, protection of intellectual property rights, interaction with user and developer communities and how research software engineering as a skill is used in hiring, evaluation and promotion. Another motivation for institutions to develop and use these policies is compliance with funding agency, government, and disciplinary requirements and norms around data and software management. Ultimately, by establishing solid policies for research data and software management, institutions can promote good research practices, enhance collaboration, foster reproducibility, and maximise the value to the institution and the impact of efficient and reliable scientific research.

The WG’s five aims will build on existing work and result in five deliverables, supported by five WG sub-groups (outlined in section 4):

1. Identification of relevant policies, building on the [institutional policies](https://www.researchsoft.org/software-policies/) already collected by the [ReSA taskforce](https://www.researchsoft.org/taskforces/); forthcoming Science Europe outputs; and [OSPO++](https://ospoplusplus.org/) resources and case studies to support the growth of Open Source Program Offices (OSPOs).
2. Collation of resources on how to support policy change in research institutions in practice, to support implementation. This will utilise work such as [How to Introduce and Implement Policy in Your Institution and Still Have Friends After](https://fsci2020.sched.com/event/cPAb/t14-how-to-introduce-and-implement-policy-in-your-institution-and-still-have-friends-afterwards), a FORCE11 Scholarly Communication Institute course by Danny Kingsley and Sarah Shreeves.
3. Development of a common framework for research software policy through analysis of policies collected, allowing for different levels of commitment. This will build on the Open Research Funders Group (ORFG) [Policy Clause Bank and Generator,](https://www.orfg.org/policy-development-guide) which includes policy clauses for code and software sharing (for funders). A web platform will be built to visually categorise and compare policies. This platform, will allow users to assess their organisation's alignment and promotes global standards. It also might enable community submissions, fostering a collaborative global curation process.
4. Identification of areas where policies are lacking, such as recognition of research software contributions in relation to research assessment reform, to catalyse efforts in this area.
5. Identification of case studies to increase adoption of (standardised) policies, which may be sourced from WG members, ReSA’s list of [institutional policies](https://www.researchsoft.org/software-policies/), [OSPO++](https://ospoplusplus.org/) resources, etc.

**3. Engagement with existing work in the area: A brief review of related work and plan for engagement with any other activities in the area.**

The proposed WG co-chairs bring the opportunity to engage with a range of open science initiatives (e.g. [FAIR Impact](https://fair-impact.eu/), [FORCE11](https://force11.org/), [IEEE Computer Society](https://www.computer.org/)); research software communities (e.g., [Research Software Engineers (RSE) Asia Association](https://rse-asia.github.io/RSE_Asia/aboutus.html), [RSLondon](https://rslondon.ac.uk), Society of RSE’s [Regional Communities SIG](https://society-rse.org/community/regional-groups/), [NL-RSE](https://nl-rse.org/), [US-RSE](https://us-rse.org/)); their own institutions (who may act as case studies); and national/regional efforts where research institutions are jointly committing to change policies and practices (e.g., [Higher Education Leadership Initiative for Open Scholarship](https://www.heliosopen.org/about) (HELIOS)).

This work could also potentially intersect with other international initiatives on funder, journal and/or government policies:

* ReSA and FORCE11 [Task Force on Code Availability](https://www.researchsoft.org/taskforces/) working towards greater alignment on policy and other related actions for code availability by publishers.
* Toolkit of the [Amsterdam Declaration on Funding Research Software Sustainability](https://adore.software/), which will assist research funders to implement the recommendations in the Declaration after its launch at the second [International Funders Workshop](https://www.future-of-research-software.org/) in September 2023. As research funders change their policies, research performing organisations will be increasingly seeking support to align their policies with this.
* UNESCO [Open Science Toolkit](https://www.unesco.org/en/open-science/toolkit), which includes a guide for developing policies for open science.

**4. Work Plan: A specific and detailed description of how the WG will operate including:**

The WG will aim to complete the following in an 18 month timeline, as summarised in this GANTT chart.

| **Deliverable** | | **Months** | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **3** | **6** | **9** | **12** | **15** | **18** |
| 1 | WG sub-group 1 formed |  |  |  |  |  |  |
| 2 | WG sub-group 2 formed |  |  |  |  |  |  |
| 3 | Deliverable 1: Database of research software policies |  |  |  |  |  |  |
| 4 | Deliverable 2: Report collating resources on how to support policy change in research institutions in practice |  |  |  |  |  |  |
| 5 | WG sub-group 3 formed |  |  |  |  |  |  |
| 6 | Deliverable 3: Common framework (curation, categorisation and web platform) |  |  |  |  |  |  |
| 7 | WG sub-group 4 formed |  |  |  |  |  |  |
| 8 | WG sub-group 5 formed |  |  |  |  |  |  |
| 9 | Deliverable 4: Report identifying where policies lacking |  |  |  |  |  |  |
| 10 | Deliverable 5: Report providing case studies |  |  |  |  |  |  |
| 11 | WG wrap-up |  |  |  |  |  |  |

The following table explains the GANTT chart above in more detail.

|  | **Milestone** | **Deliverable** | **Due date** |
| --- | --- | --- | --- |
| 1 | Creation of WG sub-group 1 to engage the community to identify policy examples to add to the ReSA database of [institutional policies](https://www.researchsoft.org/software-policies/) that support research software (deliverable 1) | WG sub-group 1 formed | 3 months |
| 2 | Creation of WG sub-group 2 to collate resources on how to support policy change in research institutions in practice (deliverable 3) | WG sub-group 2 formed | 3 months |
| 3 | Addition of policies collected by sub-group 1 to ReSA database | Deliverable 1: Database of research software policies | 6 months |
| 4 | Collation of resources by sub-group 2 on how to support policy change in research institutions in practice | Deliverable 2: Reportcollating resources on how to support policy change in research institutions in practice | 6 months |
| 5 | Creation of WG sub-group 3 to analyse collected policy examples to create a common framework (deliverable 3) | WG sub-group 3 formed | 6 months |
| 6 | Analysis of the database of research software policies to identify a common framework by sub-group 1 | Deliverable 3: Defining a common framework for research software policy using a web platform | 12 months |
| 7 | Creation of WG sub-group 4 to identify areas where policies are lacking. This will utilise the outcomes of subgroup 2, and compare with research organisation policies that support research data, open science and/or open source software (deliverable 4) | WG sub-group 4 formed | 12 months |
| 8 | Creation of WG sub-group 5 to identify case studies, utilising the work of subgroup 1 to identify case studies, and the outputs of sub-group 2 to guide analysis (deliverable 5) | WG sub-group 5 formed | 9 months |
| 9 | Analysis of the database of research software policies by sub-group 4 to identify where policies are lacking. The outcomes of sub-group 2 will assist in making recommendations on how to address these gaps | Deliverable 4: Report identifying areas where policies are lacking, to catalyse efforts | 15 months |
| 10 | Identification by sub-group 5 of case studies to increase adoption of (standardised) policies | Deliverable 5: Report providing case studies to increase adoption of (standardised) policies | 15 months |
| 11 | WG wrap-up, presentation of all WG deliverables at RDA Plenary 24 |  | 18 months |

The WG co-chairs will meet approximately monthly to coordinate activities, and provide public webinars and invitations to join the co-chairs meeting when relevant. The WG will also aim to provide updates at each RDA plenary that occurs during our timelines. The RDA Code of Conduct will be utilised for all meetings. Further information on the WG’s planned approach to broader community engagement and participation is contained in Section 7.

**5. UN Sustainable Development Goals (SDGs) (An explanation of how the Group and its activities will contribute to the United Nations’ Sustainable Development Goals (SDGs). See** [**here**](https://sdgs.un.org/goals) **for a list of the 17 goals and please specify which goals, if any, are relevant to this Group’s work.)**

This WG will contribute to SDG 9: Build resilient infrastructure. Research software is essential to modern research, but ensuring that this key research infrastructure is robust and sustainable is still a work in progress. While stakeholders are increasingly addressing this key issue, this WG will focus on a missing piece of the conversation, on how research organisations can develop, align and implement policies that support resilient research software.

This WG can also support the many SDGs whose goals will be at least in part enabled by research, such as SDG3: Good health and wellbeing, SDG7: Affordable and clean energy, SDG11: Sustainable cities and communities, SDG13: Climate Action, SDG14: Life below water and SDG15: Life on land. Studies have shown that [33 percent of international research](https://www.oecd-ilibrary.org/science-and-technology/charting-the-digital-transformation-of-science_1b06c47c-en) produces new code (see Figure 3.4), [90 percent of UK researchers](https://doi.org/10.5281/zenodo.14809) acknowledge software as important for their research, while [95 percent of US postdoctoral students](https://figshare.com/articles/journal_contribution/Track_1_Paper_Surveying_the_U_S_National_Postdoctoral_Association_Regarding_Software_Use_and_Training_in_Research/5328442/3) use research software. A world without research software is a world in which researchers cannot build and operate modern scientific instruments, nor model climate change, ecosystems, human bodies, virus outbreaks, social interactions or inequality. A world without robust, sustainable and maintainable research software is a world which fails to reap the huge potential offered by modern “digital” research, which is largely underpinned by software.

**6. Adoption Plan: A specific plan for adoption or implementation of the WG outcomes within the organisations and institutions represented by WG members, as well as plans for adoption more broadly within the community. Such adoption or implementation should start within the 12-18 month timeframe before the WG is complete.**

The WG will organise dissemination about the activities and findings and gather community feedback regularly during all the phases of the work. To promote transparency and accessibility of work in progress, the group members will utilise a public Google Drive collaborative working folder (through ReSA) for WG collaborative documents. The following table details the engagement that will be undertaken towards relevant milestones, including final adoption.

|  | **Deliverable** | **Engagement** |
| --- | --- | --- |
| 1 | Database of Research Software Policies | The WG will engage with research institutions to share the database, showcase its utility, and seek more entries. Engagement will be achieved via PRO4RS WG members, and by contacting umbrella organisations such as European University Association to ask for assistance in dissemination to their members. Likely engagement methods include blog posts, newsletter items, social media and webinars. |
| 2 | Supportive Resources for Policy Change | Gather and curate resources that provide advice on enacting policy change within research organisations. This will be achieved through online research and crowdsourcing contributions. Future case studies may reference frameworks from these resources, offering practical insights for stakeholders. |
| 3 | Common Framework for Research Software Policy | Sub group 3 will engage its members to create the framework, and provide a public webinar to gain input from additional stakeholders. The framework will aim to function as a guide rather than generic template. |
| 4 | Report identifying areas where policies are lacking, to catalyse efforts | Share preliminary findings with the community for broader input. Likely engagement methods include webinars, google docs and newsletters. Also validate with funders through the [Research Software Funders Forum](https://www.researchsoft.org/funders-forum/), due to their role in establishing common threads in policies across research organisations. |
| 5 | Report providing case studies to increase adoption of (standardised) policies | Identify 2-4 case studies from the database of research software policies, interview them and write up findings. Disseminate case studies and other deliverables through engagement such as RDA plenaries, RDA and ReSA webinars, and communications. |

The convening of this WG across RDA and ReSA will support usage of the outcomes across those communities. RDA and ReSA will systematically promote the outcomes, aiming to raise awareness and facilitate a wider adoption of the WG outcomes by research organisations. Networks that coordinate across a range of research organisations, such as the European University Association, will also be encouraged to promote our work.

**7. Initial Membership: A specific list of initial members of the WG and a description of initial leadership of the WG.**

The WG co-chairs will be:

* Michelle Barker (ReSA, Australia)
* Claudia Bauzer Medeiros (São Paulo Research Foundation, Brazil)
* Jeremy Cohen, University (Imperial College London, UK)
* Pedro Hernández Serrano (Maastricht University, Netherlands)
* Daniel S. Katz (University of Illinois Urbana Champaign, USA)
* Kim Martin (Stellenbosch University, South Africa)
* Dan Rudmann (Leiden University, Netherlands)
* Hugh Shanahan (Royal Holloway, University of London, UK)

We are establishing the WG with eight co-chairs to engage different skill sets and geographic regions, to be able to engage with a wide range of research institutions. The PRO4RS WG co-chairs include both members who are engaged with changing policies in their own research institutions, and members who lead national and/or international organisations that engage with research institutions. The [FAIR4RS WG](https://www.rd-alliance.org/groups/fair-research-software-fair4rs-wg) functioned very successfully with nine co-chairs (two of whom are also co-chairs of our WG), engaging with more than 500 members of the research community to develop community-accepted principles.

WG initial members are listed on the [PRO4RS webpage](https://www.rd-alliance.org/node/77991/members) on the RDA website. Additional members will be sought during the drafting of the case statement, and our [session](https://www.rd-alliance.org/policies-advancing-research-software-research-performing-organisations) during RDA Plenary 21. This WG will provide a range of ways for community members to engage. All community members will receive regular updates through the WG email list. The email list will facilitate collaborations through invitations to webinars, collaborative documents, surveys, etc. All documentation produced by the group will be publicly accessible via collaborative documents.